

### **REMARKS**

Claims 1, 3-11 are pending in this application. Claim 2 has been canceled without prejudice or disclaimer. Claims 1 and 3 have been amended.

Claims 1 has been amended to incorporate the limitations of claim 2, now cancelled, and claim 3 has been amended to refer to claim 1. These amendments are for the sole reason of advancing prosecution. Applicants, by canceling or amending any claims herein, make no admission as to the validity of any rejection made by the Examiner against any of these claims. Applicants reserve the right to reassert any of the subject matter canceled herein or the original claim scope of any claim amended herein, in a continuing application.

No new matter has been added.

In view of the remarks set forth below, further and favorable consideration is respectfully requested.

#### **I. Rejection of claims 1 and 4-11 under 35 U.S.C. § 103(a)**

The Official Action states that claims 1 and 4-11 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Chono *et al.* (EP 1 201 232) in view of Hirano *et al.* (US 2002/0102290).

As a basis the Official Action states in relevant part:

Chono et al. discloses a patch comprising a backing layer and an adhesive layer disposed on the backing layer and compounded with an adhesive agent and pergolide and/or pharmaceutically acceptable salt thereof ([0014], [0015]), wherein the adhesive layer comprises an acrylic polymer being a copolymer that includes 2-ethylhexyl acrylate and vinyl acetate [0030], therefore is considered to be having self-adhesion properties as well as being substantially free of carboxyl and hydroxyl groups, and a rubber polymer (SIS) [0030], [0031]. Chono et al. also discloses the acrylic polymer

being 10-98% by weight and the rubber polymer being 10-60% by weight [0031]. Chono et al. fails to expressly disclose the weight content ratio of the acrylic polymer to the rubber polymer being only from 1:1 to 1:9. However, with the ranges described above, the weight ratio content of the acrylic polymer to the rubber polymer can be fall between 1:1 and 1:9.

Further, Hirano et al. demonstrates in Example 1, a pressure-sensitive adhesive comprising an acrylate polymer (2-ethylhexyl acrylate-vinyl acetate copolymer), wherein the weight ratio of acrylic polymer to rubber polymer is 1:2.

It would have been obvious to one of ordinary skill in the art to modify the weight ratio of content of the acrylic polymer to the rubber polymer to create an adhesive layer having good permeability of the drug [0031]. Further, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art.

Applicants respectfully traverse this rejection of claims 1 and 4-11. The cited references do not establish a *prima facie* case of obviousness against the presently pending claims. To establish a *prima facie* case of obviousness, the PTO must satisfy three requirements. First, as the U.S. Supreme Court recently held in *KSR International Co. v. Teleflex Inc. et al.*, Slip Opinion No. 04-1350, 550 U.S. \_\_\_\_ (April 30, 2007), "a court must ask whether the improvement is more than the predictable use of prior art elements according to their established functions. ...it [may] be necessary for a court to look to interrelated teachings of multiple patents; the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by a person having ordinary skill in the art, all in order to determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue. ...it can be important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does... because inventions in most, if not all, instances rely upon building blocks long since uncovered, and claimed discoveries almost of necessity will

be combinations of what, in some sense, is already known.” (*KSR*, supra, slip opinion at 13-15). Second, the proposed modification of the prior art must have had a reasonable expectation of success, determined from the vantage point of the skilled artisan at the time the invention was made. *Amgen Inc. v. Chugai Pharm. Co.*, 18 USPQ 1016, 1023 (C.C.P.A. 1970). Lastly, the prior art references must teach or suggest all the limitations of the claims. *In re Wilson*, 165 USPQ 494, 496 (C.C.P.A. 1970).

### ***Presently Claimed Subject Matter***

Independent claim 1 is directed to “a patch comprising a backing layer and an adhesive layer disposed on the backing layer and compounded with an adhesive base agent and pergolide and/or a pharmaceutically acceptable salt thereof, wherein the adhesive base agent comprises an acrylic polymer including no substantial carboxyl group and hydroxyl group in the molecule and having self-adhesion properties, a rubber polymer, and a basic nitrogen-including polymer including a basic nitrogen and having no self-adhesion property, wherein a weight ratio of the content of the acrylic polymer to the content of the rubber polymer is from 1:1 to 1:9, and wherein a weight ratio of the total content of the acrylic polymer and the rubber polymer to the content of the basic nitrogen-including polymer is from 9:1 to 1:1”. Claims 3-11 are directly or indirectly dependent from claim 1.

Accordingly, the presently claimed patch comprises an adhesive base agent together with pergolide and the adhesive base is characterized in that, among others, it essentially comprises (i) an acrylic polymer including no substantial carboxyl group and hydroxyl group in the molecule and having self-adhesion properties, (ii) a rubber

polymer and (iii) ***a basic nitrogen-including polymer including a basic nitrogen and having no self-adhesion property.***

***Chono et al.***

Chono et al. describes a patch formulation comprising a basic drug (e.g., pergolide, ondansetron), an adhesive layer, and a backing layer for supporting the adhesive layer. Chono et al. further discloses a hydrophobic polymer including SIS or PIB (rubber) and an acrylic polymer and describes that they may be used alone or in combination.

However, ***as the Examiner concedes in the Official Action (see Page 4, lines 3-7), Chono et al. does not disclose the “basic nitrogen-including polymer that includes a basic nitrogen and having no self-adhesion property”***, which is an essential component of the present claim 1. Accordingly, Chono et al. fails to teach or suggest all the limitations of claim 1.

***Hirano et al. does not remedy the deficiencies of Chono et al.***

Hirano et al. discloses a percutaneous therapeutic apparatus having at least three (3) layers comprising a medicine non-permeable backing layer, a medicine storage layer containing serotonin-receptor antagonist between said backing layer and medicine-releasing layer, and a pressure-sensitive adhesive layer which is able to control release of medicine (see page 11). Further, in Example 1, Hirano et al. disclose a combined use of SIS rubber with 2-ethylhexyl acrylate/vinyl acetate copolymer for serotonin receptor antagonist.

However, Hirano et al. does not teach or suggest the component of ***“basic***

***nitrogen-including polymer that includes a basic nitrogen and having no self-adhesion property***”, as recited in present claim 1 and is also not taught or suggested in the Chono et al. reference discussed above. Accordingly, Hirano et al. cannot remedy the deficiencies of Chono et al., and in the same context, Chono et al., taken alone or in combination with Hirano et al. fails to teach or suggest all the limitations of the present claim 1.

Accordingly, no *prima facie* case of obviousness has been shown by the Examiner because the combination of references does not teach or suggest all of the recited claim features. If an independent claim is nonobvious under 35 U.S.C. §103, then any claim depending therefrom is nonobvious. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988). Applicants, therefore, respectfully request the Examiner to reconsider and withdraw this rejection.

## **II. Rejection of claims 2 and 3 under 35 U.S.C. § 103(a)**

The Official Action states that claims 2 and 3 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Chono *et al.* in view of Hirano *et al.* and further in view of Terahara *et al.*

The subject matter of claim 2 has been incorporated into claim 1, and claim 3 as been amended to refer to claim 1. The rejection of claim 2 is now moot in view of the above amendment canceling this claim. In so far as this rejection might now be applicable to claim 1 and 3-11 as amended, Applicants submit the following argument of nonobviousness of the presently pending claims 1 and 3-11 in view of this obviousness rejection.

As basis of the rejection, the Official Action states in relevant part:

With respect to claims 2 and 3, the modified Chono et al. addresses all the limitations of claim 1, however fails to expressly disclose the inclusion of a basic nitrogen-including polymer that includes a basic nitrogen and having no self-adhesion property, wherein the weight ratio of the total content of the acrylic polymer and the rubber polymer to the content of the basic nitrogen-including polymer is from 9:1 to 1:1.

Terahara et al. discloses a patch having a basic nitrogen-including polymer being a methyl methacrylate-butyl methacrylate-dimethylaminoethyl methacrylate terpolymer, or polyvinyl acetal diethylamino acetate. (p.6, lines 24-25). Terahara et al. further illustrates in Example 5, a formulation having pergolide mesilate that includes an acrylic polymer, a rubber (SIS) and a basic nitrogen-including polymer, wherein the weight ratio of the total content of the acrylic polymer and the rubber polymer to the content of the basic nitrogen-including polymer is from 9:1 to 1:1. It would have been obvious to one of ordinary skill in the art to include a basic nitrogen-including polymer and modify the amount thereof, in order to enhance the skin permeability of the drug, as taught by Terahara et al. (p. 4, line 21-p.5, line 9).

Applicants respectfully traverse this rejection, for the presently pending claims 1 and 3-11. A *prima facie* case of obviousness has not been established by the Examiner against the presently pending claims. In regards to the combination of Chono et al. and Hirano et al., Applicants incorporate herein by reference the above arguments in their entirety showing that the combination of references fail to teach all of the recited features of claim 1. For example, the presently claimed patch comprises an adhesive base agent together with pergolide and the adhesive base is characterized in that, among others, it essentially comprises (i) an acrylic polymer including ***no substantial carboxyl group and hydroxyl group in the molecule*** and having self-adhesion properties, (ii) a rubber polymer and (iii) ***a basic nitrogen-including polymer including a basic nitrogen and having no self-adhesion property.***

***Neither Chono et al., nor Hirano et al. disclose the component of “a basic nitrogen-including polymer including a basic nitrogen and having no self-adhesion property”, as recited in the present claims. Applicants submit that the one of ordinary skill in the art would not have a reasonable expectation of successfully combining the teachings of Chono et al. and Hirano et al. with the teachings of Terahara et al. to devise the claimed patch.***

***Terahara et al.***

Terahara et al. discloses a transdermal preparation containing a polymer compound having amino groups, a drug forming an acid addition salt, and carboxylic acid and/or a salt thereof, characterized in that the content of the polymer compound having amino groups is 50% or less by weight based on the whole preparation, and a molar ratio of the amino groups in the polymer compound is 0.5 mol or higher per mol of the drug, and the content of the carboxylic acid and/or the salt thereof is 1 to 10 mol per mol of the sum of the drug and the amino groups in the polymer compound.

Terahara et al. disclose at page 6, lines 24-25, a basic nitrogen-including polymer being a methyl methacrylate-butyl methacrylate-dimethylaminoethyl methacrylate terpolymer, or polyvinyl acetal diethylamino acetate. Further, ***Terahara et al. disclose in Example 5 and 6 the use of an acrylate polymer, “Duro-Tak 387-2287,” but this polymer has carboxyl groups and therefore differs from the “acrylic polymer including no substantial carboxyl group and hydroxyl group in the molecule and having self-adhesion properties” as required in the present claims.***

***No reasonable expectation of success to arrive at the present claims***

As discussed above in Section I, neither Chono et al., nor Hirano et al. disclose the component of “a basic nitrogen-including polymer including a basic nitrogen and having no self adhesion property” as required in the present claim 1. Accordingly, for the use of the component, Applicants submit that a person of ordinary skill in the art must look to the teachings of Terahara et al. Applicants draw the Examiner’s attention to the fact that ***only two examples***, i.e., Example 5 and Example 6, in Terahara et al. ***show the use of a rubber polymer in combination with an acrylic polymer.*** However, ***in both of these cases, the acrylic polymers used in Terahara et al. contain the carboxyl groups that are clearly excluded from the scope of the present claims.*** Applicants submit that because Terahara et al. discloses in Example 5 a patch comprising pergolide, an active ingredient recited in present claim 1, together with a combination of a rubber polymer (i.e., SIS) and an acrylic polymer, which however contains carboxyl groups that are excluded in the present claim 1 (i.e., Duro-Tak387-2287), one skilled in the art would take the combination of both the polymers disclosed in Terahara et al., rather than the combination of both the polymers disclosed in Hirano et al., thus failing to have a reasonable expectation of success to arrive at the present claims.

In this regard, Applicants note that the Examiner applies the Terahara et al. reference only for the disclosure of the basic nitrogen including polymer. However, Applicants respectfully point out that the entirety of the reference must be considered when in determining the scope and content of the reference. *W.L. Gore & Assocs., Inc. v. Garlock, Inc.*, 721 F.2d 1540, (Fed. Cir 1983), *cert. denied*, 469 U.S. 851 (1984). The Examiner therefore must acknowledge any disclosure in the reference that teaches away from the presently pending claims. Id.



Furthermore, applicants kindly bring the Examiner's attention to the unexpectedly superior properties of the presently claimed matrix outlined in Tables 1-3 on pages 33-35 of the instant specification. The data clearly shows enhanced maximum skin permeation rates for the drug pergolide in those examples that contain all the components as recited in the presently pending claims when compared to prior art examples where one or more of the claimed components are not present in the composition. In particular, Examples 1-6 summarized in Table 1 show drug permeation rates per unit area of skin for compositions containing the presently claimed components. Comparative Examples 1-10 in Tables 2 and 3 show drug permeation rates for compositions lacking at least one of the components of the presently claimed formulation. ***The data clearly shows superior skin permeation rates and patch properties, when compared to the drug permeation rates for compositions lacking at least one of the claimed components.***

Accordingly, the results outlined in Tables 1-3 on pages 33-35 of the instant specification show unexpectedly superior results for the presently claimed compositions. Moreover, there is ***no*** teaching or suggestion in the cited combination of references that one of ordinary skill in the art would have had a reasonable expectation of successfully combining the teachings of Chono et al. and Hirano et al. with the teachings of Terahara et al. to devise the claimed patch having such unexpectedly superior results.

As such, the presently pending claims are not obvious over the cited prior art references. Accordingly, applicants respectfully request that the Examiner reconsider and withdraw the present rejection.

**III. Provisional Rejection of Claim 1 under the Judicially Created**

**Doctrine of Obviousness-Type Double Patenting**

The Official Action states that claim 1 is provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 8 and 12 of copending U.S. Patent Application Serial No. 10/469,612.

Applicants respectfully request that the Examiner hold this rejection in abeyance until such time as the Examiner indicates there is successful resolution of the claim rejections noted above. Applicants, at that time, and if the double patenting rejection is maintained, will either address the rejection or file a terminal disclaimer over co-pending U.S. Patent Application No. 10/469,612.

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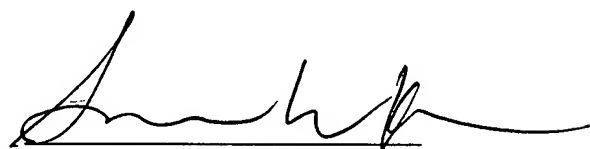
**CONCLUSION**

Applicants submit that the application is in condition for allowance. Early notice to that effect is earnestly solicited. The Examiner is welcomed to telephone the undersigned attorney if she has any questions or comments.

In the event this paper is not timely filed, Applicants hereby petition for an appropriate extension of time. Please charge any fee deficiency or credit any overpayment to Deposit Account No. 14-0112.

Respectfully submitted,  
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